VISTA Technologies, Inc.
Radiation Safety Program

PROCEDURE - 20

CONFINED SPACE ENTRY

1019 Central Parkway North, Suite 115
San Antonio, Texas 78232
210-494-4282

VISTA Technologies, Inc.
Radiation Safety Program

PROCEDURE - 22

QUALITY ASSURANCE/ QUALITY CONTROL

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Organization Chart

ABBREVIATIONS AND ACRONYMS

α	-	Alpha
ß	-	Beta
γ	-	Gamma
μ	-	Micro
^{241}Am	-	Americium-241
^{137}Ce	-	Cesium-137
^{234}Pa	-	Protactinium-234
^{210}Pb	-	Lead-210
^{210}Po	-	Polonium-210
^{214}Po	-	Polonium-214
^{218}Po	-	Polonium-218
^{232}Pu	-	Plutonium-232
^{226}Ra	-	Radium-226
^{228}Ra	-	Radium-228
^{219}Rn	-	Radon-219 (Actinium Series)
^{220}Rn	-	Radon-220 (Thorium Series)
^{222}Rn	-	Radon-222 (Uranium Series)
^{89}Sr	-	Strontium-89
^{90}Sr	-	Strontium-90
^{230}Th	-	Thorium-230
^{232}Th	-	Natural Thorium
^{238}U	-	Uranium-238
μCi	-	MicroCurie
μCi/hr	-	MicroCuries per hour
μCi/ml	-	MicroCuries per milliliter
μM	-	Micrometer
μR/hr	-	MicroRoentgen per hour
μg/mg	-	Microgram per milligram
ALARA	-	As low as reasonably achievable
ALI	-	Annual limit on intake
ANSI	-	American National Standards Institute
APR	-	Air-purifying respirator
Bq	-	Becquerel
Bq/m^3	-	Becquerels per cubic meter of air
BZ	-	Breathing Zone
C	-	Coulomb
C/kg	-	Coulombs per kilogram
CDE	-	Committed Dose Equivalent
CEDE	-	Committed Effective Dose Equivalent

CFR	-	Code of Federal Regulations
Ci	-	Curie
CIH	-	Certified Industrial Hygienist
CFM	-	Cubic feet per minute
CLIA	-	Clinical Laboratories Improvement Act
CLP	-	Contract Laboratory Program
cm	-	Centimeter
cm/sec	-	Centimeters per second
cpm	-	Counts per minute
CPR	-	Cardiopulmonary resuscitation
CSE	-	Certified Safety Executive
(D)	-	Duplicate count
DAC	-	Derived air concentration
DAC-h	-	DAC hours
DCA	-	Double Contingency Analysis
DDE	-	Deep Dose Equivalent
DI	-	De-ionized water
DOT	-	U.S. Department of Transportation
dm^2	-	Square Decimeter; one square decimeter equals 100 square centimeters
dpm	-	Disintegrations per minute
dpm/cm^2	-	Disintegrations per minute per square centimeter
dpm/dm^2	-	Disintegrations per minute per square decimeter
dps	-	Disintegrations per second
DRD	-	Direct reading dosimeter
DU	-	Depleted uranium
EPA	-	U.S. Environmental Protection Agency
eV	-	Electronvolt
FE	-	Feces sample
FIDLER	-	Field instrument for detection of low energy radiation
FR	-	Filter ratio
FSP	-	Field Sampling Plan
ft^2	-	Square foot
γ	-	Gamma ray
GA	-	General area
GeLi	-	Germanium - Lithium
G-M	-	Geiger-Mueller
GMC-H	-	Mine Safety Appliances Company, full-facepiece, dual ..combination filter cartridges for an APR
GPD	-	Gaseous Diffusion Plang
h	-	hours
He-3	-	Helium Three (3)

HEPA	-	High efficiency particulate air
HNO_3	-	Nitric acid
HP	-	Health Physics
hr	-	Hour
HS	-	Hot spot (radiation)
HSP	-	Site-specific Health and Safety Plan
HWP	-	Hazardous Work Permit
ICRP	-	International Commission on Radiological Protection
ID	-	Identification
IDLH	-	Immediately dangerous to life or health
IDW	-	Investigation derived waste
IP	-	Ionization potential
IVC	-	Independent verification contractor
keV	-	Kiloelectronvolt
kg	-	Kilogram
LANL	-	Los Alamos National Laboratory
lpm	-	Liters Per Minute
MCA	-	Multi-channel analyzer
MDA	-	Minimum detectable activity
meV	-	Millielectronvolt
m	-	Meter
m^2	-	Squared Meters
m^3	-	Cubic meters
mCi	-	MilliCurie
MSHP	-	Manager, Vista Safety and Health Program
mil	-	1/1000 inch
ml	-	Milliliter
mm	-	Millimeter
mR	-	MilliRoentgen
mR/hr	-	MilliRoentgens per hour
mrem	-	Millirem
mrem/hr	-	Millirems per hour
MSA	-	Mine Safety Appliances Company
MSDS	-	Material Safety Data Sheet
MSHA	-	Mine Safety and Health Administration
NaI	-	Sodium iodide
NCA	-	Nuclear Criticality Analysis
NCS	-	Nuclear Criticality Safety
NCRP	-	National Council on Radiation Protection and Measurements
NEA	-	Nuclear Energy Agency
NIST	-	National Institute of Science and Technology

NIOSH	-	National Institute for Occupational Safety and Health
n. o. s.	-	Not otherwise specified
NPDES	-	National Pollutant Discharge Elimination System
NRC	-	U.S. Nuclear Regulatory Commission
NS	-	Nose swipe
NTIS	-	National Technical Information Service
NVLAP	-	National Voluntary Laboratory Accreditation Program
OHSO	-	On-Site Health and Safety Officer
ORNL	-	Oak Ridge National Laboratory
ORPO	-	On-Site Ionizing Radiation Protection Officer
OSHA	-	U.S. Occupational Safety and Health Administration
pCi	-	PicoCurie
pCi/gm	-	PicoCuries per gram
pCi/l	-	PicoCuries per liter
P.E.	-	Professional Engineer
PF	-	Protection Factor
PIC	-	Pocket Ionization Chamber
PM	-	Project Manager
PMT	-	Photomultiplier Tube
PPE	-	Personal Protective Equipment
PRP	-	Potentially Responsible Party
PRS	-	Portable ratemeter/scaler
PVC	-	Polyvinyl chloride
QA	-	Quality assurance
QC	-	Quality control
R	-	Roentgen
RA	-	Restricted (radiation) area
rad	-	Radiation absorbed dose
RAS-1	-	Kurz air sampling pump flow calibration kit
REM	-	Roentgen equivalent man
RHSC	-	Radiation Health and Safety Committee
RSO	-	VISTA Radiation Safety Officer
RWP	-	Radiation work permit
SAP	-	Sampling and Analysis Plan
SCBA	-	Self-contained breathing apparatus
SRD	-	Self-reading dosimeter
TODE	-	Total Organ Dose Equivalent
TLD	-	Thermoluminescent dosimeter
TWA	-	Time-weighted average

U^{nat}	-	Natural uranium
UR	-	Urine sample
U.S.	-	United States
VISTA	-	Vista Technologies, Inc.
VSHP	-	VISTA Safety and Health Program
VRSP	-	VISTA Radiation Safety Program
WL	-	Working Level
WP	-	Work Plan

TABLE OF CONTENTS

QUALITY ASSURANCE/QUALITY CONTROL

The following sections discuss Vista's Quality Assurance (QA) or Quality Control (QC) Program, and amendments to procedures.

1. QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

The purpose of this procedure is to set forth a policy for accomplishing a quality program at Vista project work sites that would fulfill Vista's responsibility to client specifications, and will provide the project field staff with a foundation for reference and effective control for all activities.

The quality of a product or service is a primary key for customer satisfaction. Vista's entire organization recognizes the increasing demand for high quality and reliability of service aimed at the protection of both the environment and people. Vista's philosophy is that it will provide only the support service for which it is qualified. The Vista Radiation Safety Program (VRSP) and QA or QC program will maintain a high degree of confidence of the client.

The following sections delineate necessary supplies, objectives, standard operating practices, health physics quality control, and field inspections and program review.

1.1. Necessary Supplies

- "Quality Assurance Program Training Requirement and Record Form," shown as Attachment 44.
- Clipboard and Pen
- Radiation Work Permit

1.2. Objectives

The objectives of the QA/QC program for the VRSP are as follows:

- To provide an effective monitoring program for the verification of quality characteristics of analytical laboratory, dosimetry and health physics services;
- To provide continual monitoring services for review of procedures, overall effectiveness, and economic evaluation of the QA/QC program, and provide observations and recommendations for improvement in all areas of company operations where quality may be affected; and
- To provide a value analysis system for all functions of the company, and establish a "feedback system" for improved customer and employee relations.

1.2.1. Standard Operating Practices

This section discusses standard operating practices applicable to health physics services provided by Vista. Vista is dedicated to fulfilling the requirements of specific practices as follows:

- Federal and state rules, guidelines, and regulations;
- Consensus standards related to the nature of services performed (e.g., ANSI);
- Regulatory Guides published by the Nuclear Regulatory Commission (NRC); and

- Negotiated contractual agreements with clients.

1.2.2. Health Physics Quality Control

Health physics quality control is provided by an independent peer review of calculations, reports, and record keeping. The review will be for technical accuracy, approach, and validity of assumptions and conclusions. After peer review, reports will be reviewed and approved by the Vista On-site Radiation Protection Officer (ORPO) and the On-site Health and Safety Officer (OHSO).

Routine performances require documentation of all pertinent information with basic documents dated and signed or initialed. Worksheets utilized during an individual procedure are also major documents and include all raw data and other information used in performing the analyses.

Data reports to the client will have at least two successive steps of review. Data will be formally transmitted to the client via the Project Manager (PM). Responsibility for compliance with general workmanship and standard practices will be vested in the Vista ORPO and OHSO. The supervisors will, as necessary, indoctrinate and enforce employee compliance with the VRSP and the Health and Safety Plan (HSP).

1.2.3. Field Inspections and Program Review

The following field inspections and reviews will be conducted:

- Vista project management staff (Vista Program Manager, Project Manager (PM) and/or Radiation Safety Officer) are responsible for delegating assignments to the Vista On-site Radiation Protection Officer (ORPO) and Vista On-site Health and Safety Officer (OHSO) at Vista project work sites. The Vista Radiation Safety Officer (RSO) may randomly choose to visit Vista project sites, or on an as-needed basis, to review program activities and assess the effectiveness of radiological services.
- During these visits, the Vista PM and/or Vista ORPO will assist the Vista RSO in touring the Vista project work site and review the progress of field activities, inspect site records associated with personnel radiation protection, field measurement data, field laboratory data to determine the adequacy of program resources.
- On an annual basis or after mobilization of new projects, the Vista's ORPO, OHSO or RSO will audit Vista project work sites to assure compliance with the VRSP and other applicable procedures.
- Vista PMs are responsible for delegating specific assignments to site workers. The Vista ORPO is responsible for conducting radiological services in conjunction with the Vista OHSO and in accordance with Vista project specific instructions and associated procedures. The ORPO or OHSO will perform a daily radiation level survey, or as specified in the Radiation Work Permit (RWP) using the appropriate equipment for the sites and/or areas at which work will be performed.
- During the surveillance, the Vista ORPO will review records such as access control, dosimetry, survey of personnel, material released from the area, field measurements, and logbook forms that originate as a result of characterization or post-remedial action monitoring. The Vista's PMs will ensure that all records are completed in accordance with procedural requirements and printed instructions.

- Site workers are responsible for providing radiological service in accordance with written procedures and instructions. Each individual will review all forms upon which they record radiation protection and measurement data. The review is to ensure that data entries are complete and legible and all appropriate supporting information has been included prior to submittal of forms to the Vista files.

1.3. AMENDMENTS TO PROCEDURES

The VRSP is a controlled document. The purpose of this procedure for amendments to procedures is to provide a method for revisions or changes to existing procedures in the VRSP. This procedure applies to all of the procedures listed in this document.

1.3.1. Necessary Supplies

- "Document Revision Notice Form," shown as Attachment 45.
- "Document Revision Request Form," shown as Attachment 46.
- "Quality Assurance Document Review Form," shown as Attachment 47.

1.3.2. Specific Instructions

- Initiation of Change

Changes to the VRSP may be initiated by any member of the Vista project work staff (PM, ORPO, and/or OHSO) using Attachment 46. A request for a change will be submitted to the Vista RSO for approval before it is adopted. Vista RSO may provide verbal approval or when time is of critical nature authorize the ORPO. Situations of this nature will be identified in the RWP.

- Type and Description of Change

The type of change to be made should be indicated by checking the appropriate space of the form shown as "Document Revision Notice," Attachment 45. With any temporary or permanent change, one copy of the "Document Revision Notice" will be attached to the applicable procedure at the site. A temporary change will terminate with a Field Revision Order, indicating a decision of change. A permanent change will be formalized in any subsequent revision of the VRSP.

The description of the change to be made must be included in the appropriate space on the form shown as Attachment 45. The sections of the procedure being revised must be identified. All details including the correct format should be included in the revision of the procedure. Additional pages should be attached to the form shown as Attachment 45, if necessary, and should include details, maps, and figures, as appropriate.

- Effective Date

  - Temporary revisions may be approved verbally by the Vista RSO, provided written approval from the Vista RSO is obtained within 5 working days.
  - Permanent revisions to procedures will become effective on the date the form shown as Attachment 45 is signed.

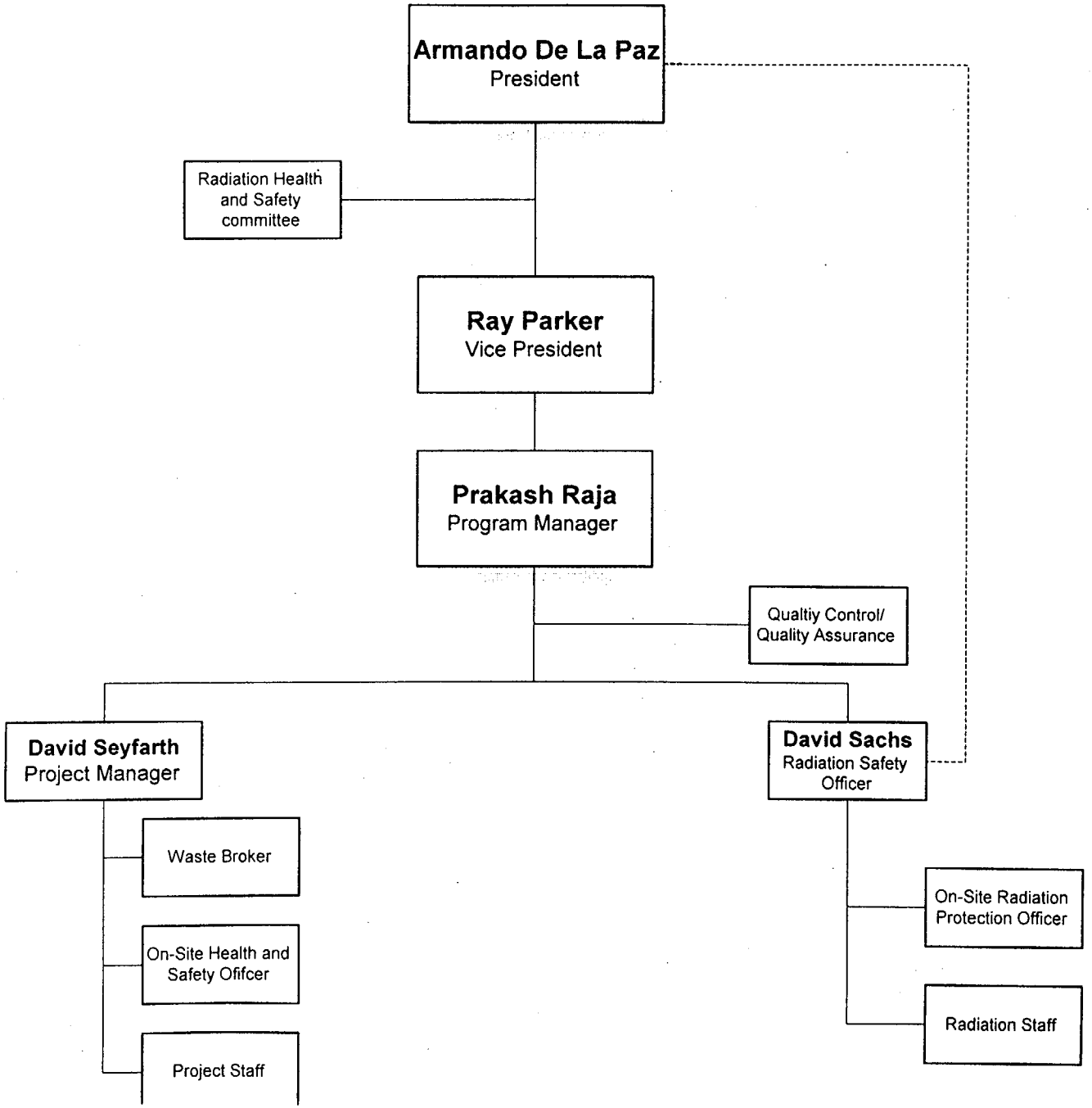
- Distribution

Copies of revisions, temporary or permanent, will be distributed to all personnel having controlled copies of the VRSP.

- Quality Assurance Annual Review

Reviews of any changes to the procedures in the VRSP will be completed annually by the Vista RSO.

VISTA RADIATION MANAGEMENT ORGANIZATION CHART



ATTACHMENTS

Attachment 44

QUALITY ASSURANCE PROGRAM TRAINING REQUIREMENT AND RECORD FORM

DISCIPLINE: _____

TRAINING REQUIREMENT:

1) Personnel listed below are required to receive the training indicated. Attendance is required as indicated by an "X" at the training session on _____ at _____. In such cases, come prepared to discuss these topics.

Manager/Supervisor: _____ Date: _____

Name Last First MI	Topics Presented					Signature

RECORD:

2) Training requirement completed as indicated for personnel with signature on _____

by _____

Manager/Supervisor: _____ Date: _____

Attachment 44

QUALITY ASSURANCE PROGRAM TRAINING REQUIREMENT AND RECORD FORM

APPLICABILITY CODES:

O = No training Required

X = Requires Full Comprehension and Discussion with Manager/Supervisor and ORPO

M = Make-Up Required at Later Date

I = Read for Information, Only

REMARKS:

3) _____

_____

_____

_____

_____

_____

Attachment 44

QUALITY ASSURANCE PROGRAM TRAINING REQUIREMENT AND RECORD FORM

Name Last First MI	Topics Presented					Signature

ATTACHMENT 45
(Sheet 1 of 2)

DOCUMENT REVISION NOTICE FORM

Revision Notice No. _____

Page _____ of _____

Issue Date _____

To:_____ Manual Number_____

Revision Approved By: (As required)

_____ _____
Radiation Safety Officer Date

_____ _____
On-Site Health and Safety Officer Date

_____ _____
On-Site Radiation Protection Officer Date

ATTACHMENT 45
(Sheet 2 of 2)

DOCUMENT REVISION NOTICE FORM

MANUAL UPDATE	PLEASE REVISE YOUR PROCEDURES AS INDICATED BELOW.
Please, Sign, Date, and Return This Entire Sheet To Vista Technologies, Inc. Acknowledgment: MY COPY HAS BEEN BROUGHT UP TO CURRENT STATUS AND SUPERSEDED MATERIAL HAS BEEN REMOVED AND DESTROYED. Date: _____ Manual No. _____ _____ Manual Custodian	_____ Delete From Your Manual _____ Insert In Your Manual _____ Other _____ Amend Your Manual _____ Correct Your Manual _____ Note In Your Manual TRAINING Revision Required Additional Training: _____ YES _____ NO _____ Document Sponsor I Acknowledge That Training is Required. _____ Responsible Individual

Attachment 46

DOCUMENT REVISION REQUEST FORM

Date: _____

Requestor: _____ Title: _____

Title, Number, and Date of Document:

_____

_____

_____

Proposed Revision:

_____

_____

_____

_____

_____

_____

Justification:

_____

_____

_____

Response:

No Comments _____ Comments Below _____ Attached Sheet _____

_____

_____

_____

Signed By: _____ Date: _____

Reviewed By: _____ Date: _____

Distribution:

Attachment 47

QUALITY ASSURANCE DOCUMENT REVIEW FORM

Date: _____

To: Distribution

From: _____

Title: _____

Subject: _____

Title of Quality Assurance Document: _____

_____

Submitted for Your _____ review.

Return Comments by _____ to Quality Assurance Office.

Response:

No Comments _____ Comments Below _____ Attached Sheet _____

_____

_____

_____

Signed by: _____

Date: _____

Reviewed/Approved by: _____

Date: _____

Distribution: